

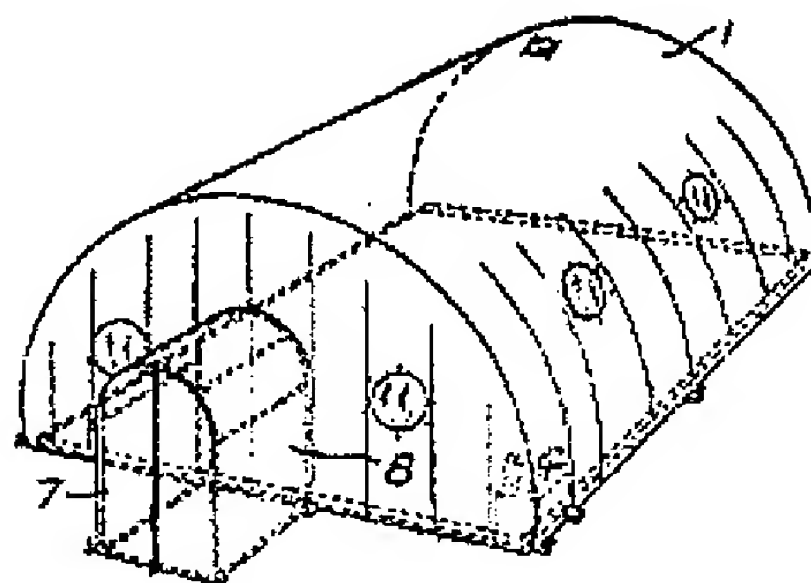
Shelter for protection against gas warfare

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- International: *E04H9/10; E04H9/04;*
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Abstract of GB457231

457,231. Gas - protection chambers.
KAPFERER, H., 40, Rue de
Buzenval, Boulognesur-Seine, France. Nov. 6,
1935, No. 30741. Convention date, Nov. 10,
1934. [Class 20 (i)] A gas-protection chamber
for use by a number of people during a gas
attack comprises an inflatable envelope 1 of
balloon or similar material impermeable to
gases, and means to inflate it whereby the
envelope is distended and sustains a pressure
within it slightly in excess of the external
pressure. It is provided with an entrance
chamber 8 enclosed by sealing doors 7 at
each end, which cannot be opened together,
and with an internal platform or carpet which
serves as a floor. Apparatus serving to renew
the oxygen and to absorb the carbonic acid is
enclosed within the envelope. The envelope
may be used within a room or building.



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AMENDED SPECIFICATION

Reprinted as amended in accordance with the decision of the Assistant Comptroller, acting for the Comptroller-General, dated the twentythird day of April, 1937, under Section 21 of the Patents and Designs Acts, 1907 to 1932.

(The Amendments are shown in erased and italic type.)

PATENT SPECIFICATION

Convention Date (France): Nov. 10, 1934.

457,231*

Application Date (In United Kingdom): Nov. 6, 1935. No. 30741/35.

Accepted: Nov. 24, 1936.



COMPLETE SPECIFICATION

Shelter for Protection against Gas Warfare

I, HENRY KAPPERER, of 40, Rue de Buzenval, Boulogne-Sur-Seine (Seine-France), of French nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

Protection against gas warfare is at present afforded either by the wearing of individual masks or by the construction of collective shelters. In the case of gas masks unless respiratory masks with oxygen reservoirs are provided necessitating a certain pneumonary experiment the protection afforded is inadequate if an attack is made employing a gas which can penetrate through the absorbent material of the device. In the case of collective shelters, however, an efficient protection is obtainable, but they are not always readily available in the event of a sudden attack. Moreover, these collective shelters are usually very costly to establish.

The object of the present invention therefore is to provide a shelter for use by a number of persons which can be installed very quickly in almost any place and even in a room and within which it is possible to breathe without the use of respiratory apparatus. A further object of the invention is to construct the shelter in such a manner that it can be folded into a compact bundle when it is not in use so as to occupy the minimum of space.

According to this invention, a shelter capable of housing a number of people to protect them against gas warfare comprises an envelope of balloon fabric or other material impermeable to gases and means for inflating same to provide a chamber which is self sustaining and within which it is possible to breathe

without the use of respiratory apparatus, the envelope having associated therewith an entrance having two doors arranged so that they cannot be opened at the same time substantially for the reason set forth.

The envelope when inflated is formed with a supplementary chamber which constitutes an entrance and which is provided with two doors so arranged as to prevent the air inside the envelope coming into contact with the air outside the envelope. Further, the envelope is provided with a part adapted to constitute a floor which is maintained flat and horizontal either by a frame, platform or a carpet.

In order that the invention may be clearly understood and readily carried into effect, I append hereto a drawing illustrating somewhat diagrammatically one embodiment of the invention.

Referring to the drawing, the pneumatic shelter comprises an envelope composed of a material which is impermeable to gases such as, for example, coated fabric, varnished material or a rubber cover (balloon fabric, gold beater's skin, paper rendered impermeable, etc.). The envelope can take the form provided by its construction by filling it with air, either by means of a bottle containing compressed air or by means of an electric, mechanical or hand-operated fan provided with an air intake and an exhaust tube. *Pure air, from a great height, can be drawn into the shelter through a can eventually be taken, (in order to tube or chimney descending from the roof remain unadulterated) to a great height of a house.*

~~either by a tube or a chimney descending from the roof of a house.~~

As the pressure of the breathing atmo-

sphere within the envelope is in excess of the pressure of the external atmosphere, protection is afforded against the penetration of the external injurious gases in the event of it being punctured or slightly porous. On the other hand, the excess of internal pressure will force the envelope to take up and to retain its intended shape.

10 The shape of the envelope concerned as a refuge can be of any desired configuration.

A frame or an internal platform 5 or even a heavy carpet upon which the refugees can stand will cause part of the cylindrical surface to be deformed, thereby providing a plane horizontal surface, which can conveniently serve as a floor. A chamber 6 of sufficient dimensions, composed preferably of the same material as the envelope is provided so as to be impermeable to the gases. This chamber is provided with two doors 7 and 8 arranged so that they cannot both be opened at the same time, but will permit the refugees to enter and depart from the refuge (whether or not they are provided with gas masks) without the internal atmosphere being able to enter into communication with the external atmosphere which is contaminated by gases.

35 If desired, the dimensions of the envelope can be slightly greater than those of the premises in which it is inflated, whereby an air-tight chamber is provided which acquires the same configuration as the premises within which it is inflated because it applies itself to the surface thereof. An entire part of a cave or dwelling house can thus be rendered impermeable to gases.

Deadlights 9 fitted to the envelope in an air-tight manner may be provided.

45 The interior of the envelope may accommodate any movable accessories and furniture as desired, and may be illuminated by electric light employing accumulators, telephones, etc. may also be included. The apparatus serving to renew the oxygen and to absorb the carbonic acid, such as is used in a submarine, can be either located inside or outside the casing, and connected to the casing by means of flexible sleeves or like suitable pipes and by means of fans, either electrically or hand-operated by the occupants of the casing, the internal atmosphere can be caused to circulate through suitable purifying chemical products. *The latter fans can*

~~The same fans can also be used to take also be used to draw in pure air, either in away eventually the air fouled by breathing a filtered or unfiltered condition, through ing to a pipe leading to the roof, the fouled the pipe leading from the roof, and can air being expelled to the exterior air expel, to the exterior of the shelter, the either in a filtered or unfiltered condition. air fouled by breathing.~~

In normal times, in the absence of danger, the air can be removed from the envelope and the envelope folded compactly so as to occupy the minimum of space.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A shelter capable of housing a number of people to protect them against gas warfare, comprising an envelope of balloon fabric or other material impermeable to gases, and means for inflating same to provide a chamber which is self sustaining and within which it is possible to breathe without the use of respiratory apparatus, the envelope having associated therewith an entrance having two doors arranged so that they cannot both be opened at the same time substantially for the reason set forth.

2. A shelter as claimed in claim 1 wherein a part of said envelope is adapted to constitute a floor which is maintained flat and horizontal by means of a frame, internal platform or a carpet.

3. A shelter as claimed in claim 1 or claim 1 as modified by claim 2 wherein said envelope, when inflated, is formed with a supplementary chamber which constitutes the entrance having the said two doors.

4. A shelter as claimed in claim 1 or 2 including means for reconditioning the air inside the chamber.

5. A shelter for protection against gas warfare, substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 6th day of November, 1935.

For the Applicant,

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[This Drawing is a reproduction of the Original on a reduced scale.]

